PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM OSLER, M.D.,

PROFESSOR OF MEDICINE IN THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND,

AND

W. S. THAYER, M.D.,

ASSOCIATE PROFESSOR OF MEDICINE IN THE JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND.

The Early Diagnosis of Attacks and Relapses of Acute Articular Rheumatism.—ACHALME (*Archives Générales de Médecine*, September, 1902, p. 257) asserts that of all the infectious diseases acute articular rheumatism is the one in which the physician is able to render his patient the greatest service by an early diagnosis. The earlier salicylate medication is used, the more efficacious it is. It shortens the duration and lessens the intensity of the disease, and indirectly by acting in this way diminishes the likelihood of the occurrence of organic heart lesions. He states, therefore, that it would be of the greatest possible importance if a diagnosis of rheumatism could be made in the pre-articular stage.

The writer remarks that, unfortunately, this is rarely possible, owing to the fact that both private and hospital patients seldom come under observation until after there are definite articular symptoms. After referring to the uncertainty and variability of the prodromal symptoms of rheumatism he states that clinical observation has taught him that there is a very important and fairly constant cardiac symptom which precedes the joint manifestations. This symptom is cardiac arrhythmia. This precedes the joint symptoms by four or five days. The pulse is irregular in force and particularly in rhythm. The heart beats occur in groups of two, three, or four. The heart's action is slowed to between 50 and 60. The examination of the heart in initial attacks at this stage usually shows no evidence of valvular disease. The same cardiac arrhythmia also precedes the onset of relapses of articular rheumatism by four or five days. He reports several observations in which the phenomenon was observed in relapse cases in hospital wards. The arrhythmia usually lasts forty-eight or sixty-two hours.

Achalme says that this cardiac irregularity is due either to a disturbance of the nervous mechanism regulating the cardiac action by some toxic substance, or to a lesion of the myocardium resulting from the local infection with some organism. He believes that the latter hypothesis is the correct one, and advances experimental evidence to support this view. The writer has isolated a bacillus from the blood of several cases of articular rheumatism. He injected into the ear veins of a series of rabbits 2 c.c. of a culture of this organism. In 60 per cent. of the cases a definite cardiac arrhythmia, similar to that observed clinically, occurred. It develops from six to twelve hours after the injection and before any other phenomena. According to the age of the animal death may occur in twenty-four to forty-eight hours, eight days, or recovery may occur. In the young rabbits which die rapidly one finds numerous micro-organisms in clumps in the myocardium. In the older animals which live a little longer one finds a fibrinous pericarditis without organisms in the exudate; the myocardium still shows foci of bacilli, although they are more scattered. If death be delayed for four or five days all the serous cavities contain a serous exudate which is tinged with hæmoglobin, but which is still sterile. Endocarditis did not develop in any of the animals. If the animals recover the temperature falls and the cardiac arrhythmia disappears completely in two or three days.

Achalme believes that his experiments indicate strongly that the cardiac arrhythmia in man is due to a bacterial infection of the myocardium.

Case of Tubercular Tumor of the Spinal Cord in a Child Two Years Old.—HUNTER (*Brain, Summer*, 1902, p. 226) reports the case of a child, aged two years, who, at eleven and twenty-two months, was said to have had attacks of "pneumonia." After the last attack the right arm was found paralyzed, and the left subsequently showed some paresis. When the case came under observation there was internal strabismus of the right eye. The head was turned toward the left shoulder. The right arm was completely paralyzed, the muscles being flaccid, but not wasted. There was some paresis and rigidity of the muscles of the left arm. The right leg was paralyzed, but the left not completely so. The knee-jerks were exaggerated and the ankle-clonus was present on both sides. The superficial reflexes were diminished and sensation was everywhere impaired. The child died eventually with unmistakable signs of meningitis.

The autopsy showed tuberculous lesions of both lungs. There was a characteristic tuberculous basilar meningitis. The meninges of the cord were also involved. The cervical enlargement was distinctly more voluminous than normal, and soft in consistency. The enlargement occupied five segments, beginning at the second pair of cervical nerves and ending at the seventh cervical. It was about one and a half inches long. On transverse section the enlargement was found to be due to a tuberculous nodule, occupying the centre of the cord, with but a narrow rim of cord tissue surrounding it. Careful study of fresh and stained sections indicated that the growth had commenced in the right posterior horn, which was almost obliterated. The right anterior horn had been almost entirely destroyed as well. The left anterior and posterior horns were uninvolved throughout. The centre of the nodule had undergone caseation. The stained sections showed that the ganglion cells of the gray matter were well preserved. This fact was probably responsible for the absence of wasting in the paralyzed muscles. An ascending degeneration was found in certain of the tracks in the white matter of the cord. This degeneration was attributed to the meningitis rather than to the tumor. The meningitis was believed to have produced its effects through direct action on the ascending fibres themselves, and in part indirectly by its effect on the posterior roots. The writer remarks on the rarity of such tuberculous nodules in the cord, unassociated with tuberculous nodules in other parts of the nervous system.

On a Powerful Specific for the Treatment of Malarial Fever.—GAUTIER (*Archives de Parasitologie*, June, 1902, No. 4, Tome v., p. 569), after a brief historical account of the use of arsenic in the treatment of malaria, states that it was formerly given more for its tonic and alterative effect than as a febrifuge. Moreover, its administration was practically always accompanied by that of quinine.

It is to Gautier that credit is due for demonstrating to the medical profession the beneficial effects of certain organic preparations of arsenic, the so-called cacodylates, in the treatment of malarial cachexia. His discovery of the general therapeutic effects of the cacodylates was made in 1898, in which year he presented a communication before the Academy of Medicine in Paris. With the cacodylates he cured two cases of pernicious malaria, one of which had been suffering from malarial relapses since 1861, and both of which had not yielded satisfactorily to quinine.

Since his first communication he, with the assistance of his medical confrères, some of whom were practising in the French colonies in Africa, has been experimenting with various organic preparations of arsenic in the treatment of malaria. As a result, he finds that disodic methylarsenate, $AsCH_3O_3Na_2$, is a powerful specific in malarial fever. It is closely allied in composition and constitution to sodium dimethylarsenate or cacodylate. The disodic methylarsenate was put on the market in Paris as the "nouveau cacodylate, sel arsenical B, arrhénal." It has been shown to be non-toxic and may be given either by mouth or hypodermically. Gautier recommends its use by subcutaneous injection, as it is more rapid in its effect and causes no local reaction. It is given in doses of from 5 to 10 centigrammes. Gautier has used it in nine cases of pernicious malaria which had not yielded to the administration of quinine. Detailed notes of seven of these cases are given. In some of the cases a single injection of 5 or 10 grains of the disodic methylarsenate caused an immediate cessation of the febrile paroxysms and a complete and persistent disappearance of the malarial organisms. Sometimes two injections, but very rarely more than three, were necessary to produce a permanent cure. The drug has the advantage over quinine in that it does not in any way upset digestion. It seems to stimulate the appetite. It appears to have a remarkable action in rapidly overcoming the malarial anæmia, increases of from 300,000 to over 1,000,000 red cells in forty-eight hours after the first injection being recorded. Gautier believes the drug is a more powerful specific than quinine.

Tabes in Hereditary Syphilitics.—BABINSKI (*La Semaine Médicale*, November 5, 1902, p. 369) says that, although there are not more than twenty recorded cases of tabes in individuals suffering from inherited syphilis, yet he is inclined to believe that such cases occur more frequently than is generally supposed. He reports two instances which are especially interesting, in that the father of both subjects was himself suffering from locomotor ataxia.

The first patient was a girl, aged twenty-two years, with Hutchinson's teeth. At birth she had anal ulcerations, and attacks of convulsive tic since seven years of age. When seventeen she developed an interstitial keratitis of the type seen in hereditary lues. For the past two years she had been suffering from shooting pains, and her pupils failed to react to light. The girl's father had contracted syphilis and had contaminated his wife at the time she was pregnant. He himself had characteristic signs of tabes; absence of patellar and tendo-Achilles reflexes, vesical symptoms, shooting pains, and Argyll-Robertson pupils.

The second case was a girl, aged fifteen years, whose pupils were inactive to light and whose patellar and tendo-Achilles reflexes were absent. She had vesical symptoms and a left-sided syphilitic choroiditis. The cerebrospinal fluid showed a lymphocytosis. She had mental symptoms resembling either those of dementia præcox or of a diffuse meningo-encephalitis.

Babinski thinks that the knowledge of the occurrence of such cases is of practical importance, in that the thorough and prolonged use of mercury may have a definite influence in retarding the development of the tabetic symptoms.

Treatment by the Tourniquet to Counteract the Vasomotor Spasm of Raynaud's Disease.—CUSHING (*Journal of Nervous and Mental Disease*, November, 1902, p. 657) reports a case in which he adopted the unique treatment of applying a tourniquet for the relief of the pain produced by the vasomotor spasm of Raynaud's disease. The patient, a married woman, aged thirty-five years, was admitted to the Johns Hopkins Hospital under Dr. Osler on October 29, 1901, complaining of "blueness and pains in the extremities." Every winter since childhood she had suffered from attacks of chilblains. During the attacks the toes and fingers would become "red and swollen and would itch and burn." In March, 1901, these symptoms became much aggravated. From that date up to the time of admission a condition of local asphyxia of all the digits had been present, with exacerbations of almost daily occurrence. The arterial spasm was pronounced and was associated with intense pain. On several occasions these attacks were so severe that slight superficial patches of terminal gangrene had affected the pads of one or more of the toes or fingers. Treatment up to admission had been without avail, and there had been almost a daily use of morphine to relieve the pain and induce sleep. After she entered the hospital all the usual methods of treatment, except galvanism, had been tried, without avail.

Raynaud's original theory explaining the local syncope, local cyanosis, thrombosis, and gangrene characterizing the disease known by his name, has not been disproved by subsequent investigators. He believed that the disease was due to an excessive irritability of the vasomotor centre or centres, leading to constriction of the arterioles in certain vascular areas, the exciting cause being a peripheral irritant, usually cold. The treatment naturally must be directed toward overcoming this abnormal vasoconstrictor spasm.

The use of the tourniquet was suggested to Cushing by observing the phenomena following the removal of the tourniquet after operation. After its removal a flushing of the member with arterial blood almost invariably occurs peripherally to the site of constriction. This is presumably due to the temporary paralysis of vasomotor control to the part below the encircling bandage. The constriction causes in some way a "blocking" of the non-medullated fibres. It was the familiarity with the vasodilatation occurring under these circumstances which suggested the employment of a similar procedure as a therapeutic measure to counteract the local conditions of spasm which characterize Raynaud's disease.

The tourniquet was first applied for two minutes on November 10, during an exacerbation of pain and asphyxia in the left upper extremity, a flat rubber bandage being used. It caused some temporary discomfort, but its removal was followed by a much more readily palpable radial artery and great relief to the pain. From this on the tourniquet was applied daily to one or other extremity as conditions indicated. The patient immediately began to make rapid improvement. The pain was always greatly ameliorated, and the attacks became gradually less frequent. Finally they ceased, and she was eventually discharged on December 28, apparently quite well and with the extremities presenting their normal physiological tint.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

JOHN RHEA BARTON PROFESSOR OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE UNIVERSITY HOSPITAL,

AND

F. D. PATTERSON, M.D.,

SURGEON TO THE DISPENSARY OF ST. AGNES' HOSPITAL; ASSISTANT SURGEON TO THE DISPENSARY OF THE UNIVERSITY HOSPITAL.

The External Dorsal Luxation of the Metacarpophalangeal Joint of the Thumb.—GRISEL (*Revue de Orthopédie,* January, 1902), in a critical and exhaustive review of this subject, states that the pathological anatomy of the complete variety of the dislocation has been well shown by the researches of Vitrac, who gives the following résumé of the lesions: 1. Tearing of the two lateral ligaments. 2. Displacement of the tendon of the long flexor to the outer side of the metacarpal head. 3. Tearing of the phalangeal tendinous sheath, with displacement of the tendon to the outer side of the intersesamoid space. 4. Tearing of the adductor muscle, with or without penetration of this muscle by the head of the sesamoid. The symptoms have been well described in the observations of Guermonprez, and are those of the habitual luxation in the Z position—shortening of the thumb and a variable degree of mobility of the phalanx and three characteristic signs: 1. The situation of the phalanx over the external surface of